ORIGINAL
(Red)

R-585-10-7-48

SITE INSPECTION OF SLOAN LANDFILL PREPARED UNDER

TDD NO. F3-8706-13
EPA NO. PA-595
CONTRACT NO. 68-01-7346

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 29, 1988

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY	REVIEWED BY	APPROVED BY
(b) (4) [redacted]	(b) (4) [redacted]	(b) (4) [redacted]
(b) (4) [redacted] HYDROLOGIST	ENVIRON. SCIENTIST	REG. OPERATIONS MANAGER, FIT 3

Site Name: Sloan Landfill
TDD No.: F3-8706-13

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APPENDICES

SECTION 1

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-7346. This specific report was prepared in accordance with Technical Directive Document No. F3-8706-13 for the Sloan Landfill site, located in Clarion, Pennsylvania.

1.2 Scope of Work

NUS FIT 3 was tasked to conduct a site inspection of the Sloan Landfill site.

1.3 Summary

The site is a residential lot, approximately three acres in size, that contains a two-acre dump site. The area north and west of the residential lot was used during the 1960s to dispose municipal and industrial waste from Owens-Illinois.

The property is currently owned by (b) (6) but is rented to (b) (6) Joseph Sloan, the previous owner of the site, operated the landfill during the 1960s before it was closed in 1969.

Two waste disposal areas are apparent. One is directly behind the (b) (6) home and a smaller demolition waste disposal area is west of the (b) (6) home. A large strip mine spoil pile is present approximately 150 feet west of the Taylor home. The waste types present behind the (b) (6) home include municipal waste, rusted car parts, rusty empty drums, and demolition debris.

NUS FIT 3 performed a site inspection on July 7, 1987. Analytical results of samples collected by FIT 3 of surface and augered soil samples revealed elevated levels of antimony and arsenic.

A Quality Assurance Review of the data appears in section 7.0 and a complete Toxicological Evaluation of all sample results is available in section 8.0.

SECTION 2

ORIGINAL (Red)

2.0 THE SITE

2.1 Location

The site is located approximately 1.25 miles southwest of the town of Strattanville, in Clarion County, Pennsylvania. The site can be located on the United States Geological Survey (U.S.G.S.) Strattanville, Pennsylvania 7.5 minute quadrangle map at 41° 12' 03.0" latitude and 79° 24' 00" longitude. The site can also be located 3.5 inches east and 10 inches south of the northwestern corner of the same map (see figure 2.1, page 2- 2).[1]

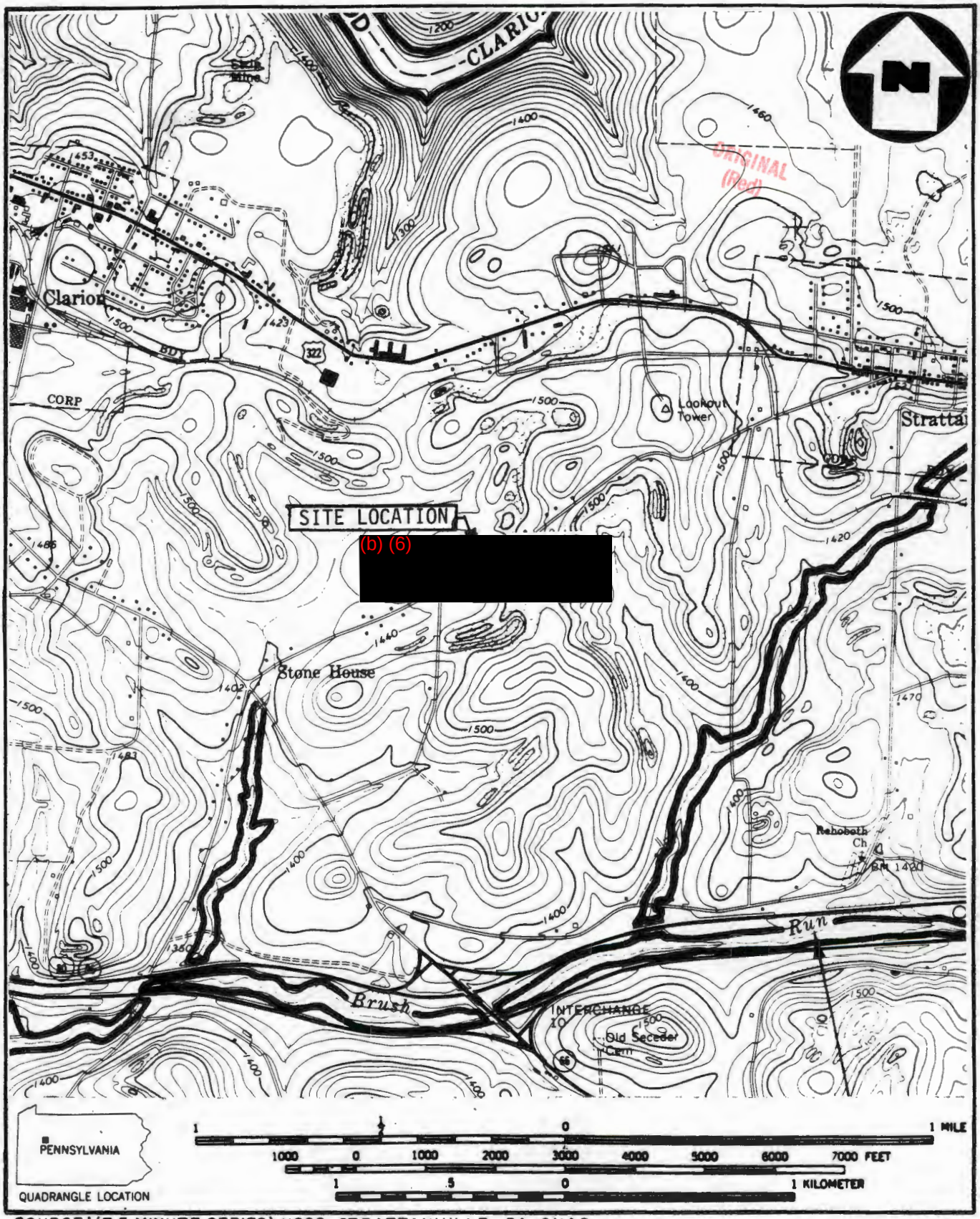
2.2 Site Layout

The area of concern occupies approximately two acres of a parcel of land approximately three acres in size. The (b) r home is situated on a leveled lot that is part of the three-acre parcel (see figure 2.2, page 2-3). Approximately 500 feet west of the (b) (6) lot (on another level lot) is the (b) (6) home. Between these two lots is a valley with approximately 40 to 50 feet of relief, with a large strip mine spoil pile in the middle. The spoil pile rises to a height that is approximately 15 feet above the elevation of the 2 residential lots. The eastern base of the spoil pile is flush with the northwestern corner of the (b) (6) lot; therefore, two depressions exist adjacent to the (b) (6) lot. The first depression is behind (north) the (b) (6) lot where a large debris dumping area exists within a V-shaped valley. The V-shaped valley has 50 to 60 percent slopes on each side and approximately 30 to 40 percent slopes along the side where the trash and debris had been dumped into the depression from the (b) (6)'s backyard. The second depression is less distinct. It begins along the western edge of the (b) (6) lot and runs parallel to Route 16110, then northwest around the elevation of the Thompson lot. The walls of the valley include the slopes (30 to 40 percent) leading up to Route 16110, the slope (30 to 40 percent) up to the demolition debris area along the (b) (6) lot, the slope (50 to 60 percent) leading up to the (b) (6) lot, and the slope of the spoil pile (20 to 30 percent).[2]

The site is easily accessible from Route 16110. No fencing exists around either the (b) (6) home or the (b) (6) home. Many foot paths exist throughout the spoil pile area.[2]

2.3 Ownership History

The site is currently owned by (b) (6), but it is rented to (b) (6) (b) (6) bought the property from James C. Sloan in 1978. James C. Sloan acquired the property from Joseph Sloan in 1967.[3]



SOURCE: (7.5 MINUTE SERIES) USGS STRATTANVILLE, PA QUAD.

SITE LOCATION MAP

SLOAN LANDFILL, STRATTANVILLE, PA

SCALE 1:24000

FIGURE 2.1

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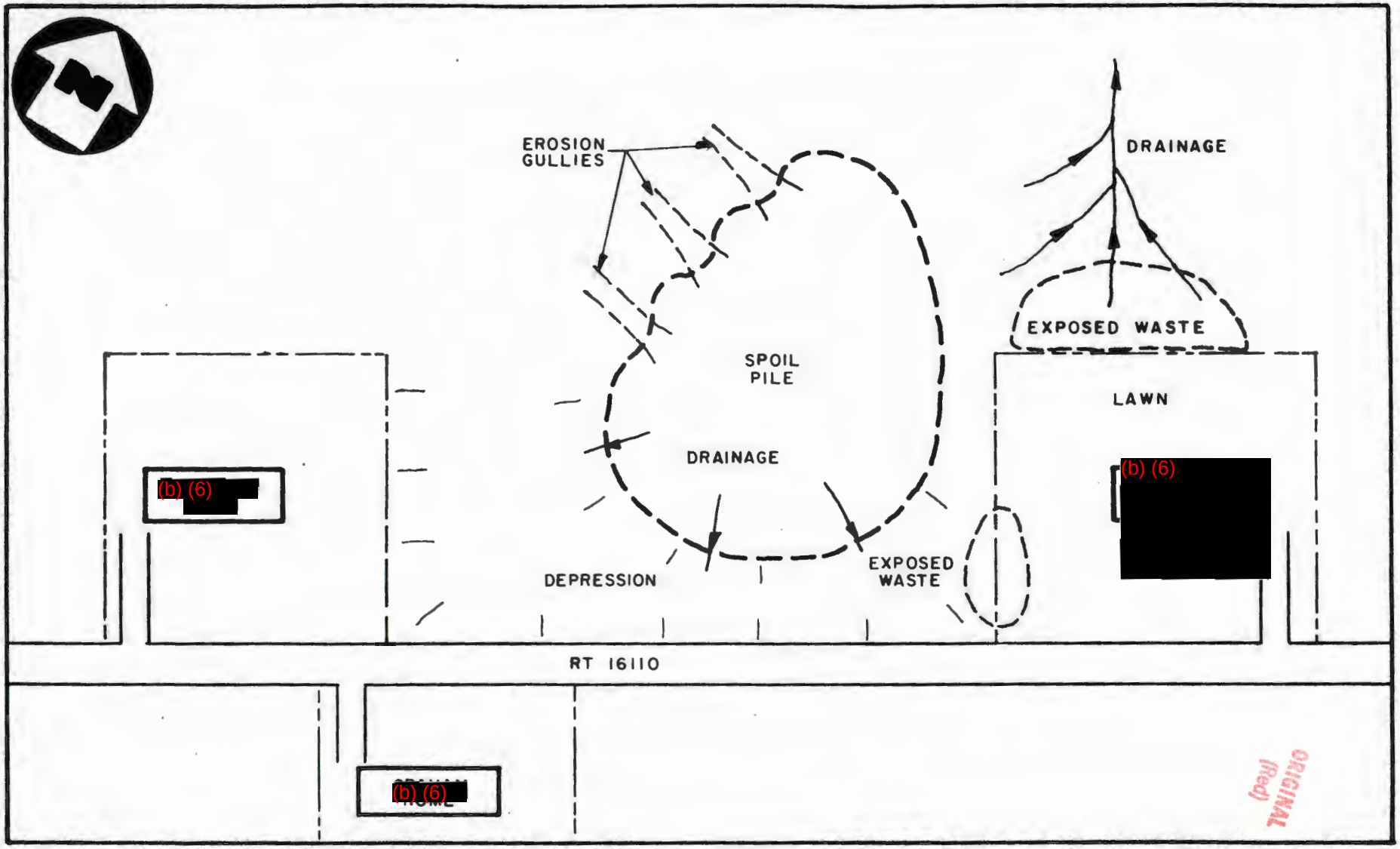

SITE SKETCH

SLOAN LANDFILL, STRATTANVILLE, PA

(NO SCALE)

FIGURE 2.2

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2.4 Site Use History

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(b) (6) [redacted] the current owner, never operated the landfill. The site was operated by Joseph Sloan during the 1960s. Mr. Sloan allegedly used the site for the disposal of both municipal waste and industrial waste from the Owens-Illinois Company. Information pertaining to site use prior to Mr. Sloan's operations is not available, although the site appears to have been part of some past mining activity since the trees on the spoil pile appear to be 20 to 30 years old.[2,4]

2.5 Permit and Regulatory Action History

The site never obtained permits for operating the landfill. The site obtained EPA Identification No. PAD980537500 in June 1981.[2]

Apparently, the Pennsylvania Department of Environmental Resources (PA DER) informed Mr. Sloan in 1969 that the dumping was illegal, but details are not available. PA DER conducted a preliminary assessment on the site in November 1984. The site was discovered as a result of a CERCLA notification filed by the Owens-Illinois Company in Clarion.[4]

2.6 Remedial Action to Date

No remedial action has taken place at the site to date.[4]

SECTION 3

3.0 ENVIRONMENTAL SETTING

3.1 Water Supply

Residents utilize both surface and groundwater sources within a three-mile radius of the site for their drinking water supply.

The township of Clarion, which includes the towns of Clarion and Strattanville, are provided water through the Western Pennsylvania Water Company (WPW). WPW utilizes a surface water intake located approximately two miles northwest of the site on the Clarion River. Water is pumped via a treatment facility to the distribution system, which serves 10,000 people, including Clarion University. WPW supplies the entire corporate boundary of Clarion, which sells water to Strattanville and Clarion Townships. The Strattanville service area extends only to the corporate boundary. The Clarion Township service lines are limited to the areas along Route 322.[5,6,7]

Residents outside the aforementioned areas rely on private groundwater wells for drinking supplies. The (b) (6) home well, which is 60 feet deep, is located approximately 50 feet from the southwestern corner of the site. This well probably taps the Allegheny Group aquifer. Wells in Clarion Township are between 29 and 300 feet deep.[7,8,9,11]

Land irrigation for agricultural purposes does not occur within the area of the site.[8]

3.2 Surface Waters

The site drains to the north into an unnamed intermittent stream to Brush Run. The intermittent streambed lies approximately 2,000 feet north of the site and discharges into Brush Run at a point approximately 1.5 miles southwest of the site. Brush Run discharges into the Clarion River, approximately four miles west-southwest of the site and downstream of the intake for WPW.[1]

The Clarion River is classified as a cold-water fishery.[10]

3.3 Hydrogeology

The geologic and hydrogeologic conditions in the study area were researched as part of the site inspection. A preliminary literature review was conducted to determine surface and subsurface geologic conditions, soil character, and the status of groundwater transport and storage.

3.3.1 Geology

The Sloan Landfill facility is located within the northern region of the Pittsburgh Plateaus Section of the Appalachian Plateau Physiographic Province in central Clarion County. Topographically, the region is characterized by rounded ridge tops rising above deep, steep-sided stream valleys. Structurally, the region is characterized by a series of gently folded northeastern-southwest trending anticlines and synclines. The axis of the Sligo Syncline lies approximately 0.5 mile east of the site. The axis of the Clarion anticline is found in the northwesternmost part of the three-mile radius study area (see figure 3.1, page 3-3). Overall, the general dip of the strata is approximately 40 to 50 feet per mile to the southwest.[11,12]

Bedrock underlying the site is mapped as the Pennsylvanian age Allegheny Group, which contains several economically important coal beds separated by shale, sandstone, limestone, and clay (see figure 3.1, page 3-3). This group includes strata between the top of the Upper Freeport coal and the base of the Brookville coal, with individual units differing in thickness from one area to another. Throughout most of the group, the shales are gray, except in the upper portions where they are greenish-gray. Massive, coarse-grained sandstone are prominent in many areas.[11]

The lower Pennsylvanian age Pottsville Group and the upper Mississippian age Pocono Group crop out within a three-mile radius of the site. These groups are primarily exposed in stream valleys of the Clarion River and its tributaries. The Pottsville Group consists of sandy shales, coal, and massive, light gray, coarse-grained sandstone that are loosely cemented in some parts of the county. Two major formations of the Pocono Group crop out or occur near the surface in this region. These are the Burgoon sandstone and the Cuyahoga Formation. The Burgoon sandstone consists of gray to white, often iron-stained, thick, medium- to coarse-grained sandstone with shale lens; the underlying Cuyahoga Formation is composed of hard, sandy shales.[11, 12]

SOURCE: ATLAS OF PRELIMINARY GEOLOGIC QUADRANGLE MAPS OF PA.

FIGURE 3.1

GEOLOGIC MAP

SLOAN LANDFILL SITE

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3.3.2 Soils

The site is mapped as being underlain by soils of the Gilpin Series (see figure 3.2, page 3-5). The Gilpin silt loam that underlies the site has a slope of 5 to 12 percent. This soil occupies moderate slopes on rounded hilltops and broad smooth ridges. Its water-supplying capacity is moderate to moderately low. Because of previous mining activity around the site and because of site-related activities, it is unlikely that the properties associated with these soils persist.

Soils of the Gilpin Series developed from material weathered from shale and sandstone. In their parent material, the proportion of silty shale and very fine sandstone is high. A typical profile of this soil type is described as follows: 0 to 7 inches, dark grayish-brown crumbly silt loam with weak fine granular structure; 7 to 24 inches, yellowish-brown heavy silt loam with a weak fine to medium subangular block structure. The amount of shale and sandstone fragments increase with depth; 24 inches plus, broken, partly weathered shale and sandstone having yellowish-brown silt loam coatings on stone fragments. In addition, there are brownish-yellow to yellowish-red coatings on the shale fragments, and black iron and manganese coatings in some places. The shale ranges from olive to brown or dark gray. Some coal fragments and carbonaceous shale is also present.[13]

Soils types, other than those of the Gilpin Series, that have been mapped in the vicinity of the site are Made Land, mine dumps, and strip mine soil.[13]

Made Land is a miscellaneous land type consisting of areas where the normal soil profile has been covered or destroyed by artificial earth-moving operations. These areas may consist of quarries or areas where the soil has been excavated, dumped to the side, and/or subsequently filled back in. The texture, composition, and structure of this soil material may vary considerably.[13]

Mine dumps are a miscellaneous land type consisting of piles of mixed carbonaceous shale and low-grade coal discarded in mining and coal cleaning operations. Much of the remaining soil material is strongly acidic.[13]

Strip mine spoil refers to areas where the overburden of soil and rock is removed and discarded to adjacent areas during strip mining. The soil, shale, sandstone, and carbonceous shales are thoroughly mixed. These areas may or may not be graded.[13]

SOURCE: SOIL SURVEY OF CLARION COUNTY, PENNSYLVANIA

FIGURE 3.2

SOIL MAP

SLOAN LANDFILL SITE

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3.3.3 Groundwater

Groundwater in Clarion County occurs under both artesian and water-table conditions. Fracture and/or solution cavities provide secondary porosity to rocks in the area of the site. Groundwater movement and flow also take place in the intergranular pore spaces in sandstone (primarily porosity).[11]

Groundwater yields are variable in the Allegheny Group. The highest groundwater yields come from permeable sandstone and limestone members. Groundwater occurs and moves through pore spaces and fractures in sandstone and via secondary porosity in limestone. Small to moderate supplies can be obtained from depths up to 300 feet, with some wells yielding greater than 100 gallons per minute (gpm). If yields of 35 gpm or more are desired, wells should be drilled to depths of at least 250 feet. Sufficient water for domestic purposes can be obtained at almost any location, but yields large enough for industrial and municipal purposes are difficult to obtain.[11]

The Pottsville Group yields poor to moderate groundwater supplies, with the upper and lower sandstone units supplying the highest yields. Here, the groundwater occurs and moves through pore spaces between grains and in fractures within the formation. Fairly good groundwater supplies can be obtained for the Burgoon sandstone aquifer of the Pocono Group. Deep industrial and municipal wells locally tap the Pocono Group at depths from 300 to 500 feet. Static water levels reported for these wells are from 96 to 225 feet below ground level, and yields range from 20 to 69 gpm. The Cuyahoga Formation is not considered a good aquifer.[11]

The expected direction of groundwater flow is to the northwest toward a tributary of Brush Run.

3.4 Climate and Meteorology

The annual climate of the site area is characterized by relatively warm, humid summers and moderately cold winters. The average annual temperature is 47.3°F. The average annual precipitation is 42.10 inches. The mean annual lake evaporation value is 28.0 inches. The net annual precipitation, therefore, is 14.1 inches for the site area.[14]

3.5 Land Use

The land in the immediate vicinity surrounding the site has been heavily strip mined. Glacier Minerals currently owns a strip mine directly across the street from the site. Numerous other strip mines are located within the three-mile radius of the site. The town of Clarion and Clarion State College are between one and three miles west-northwest of the site. The smaller town of Strattanville is located one mile northeast of the site. The remainder of land is rural, with agricultural and scattered residential homes. Interstate Route 80 bisects the three-mile radius and is one mile south of the site at its closest point. The Clarion River bisects the three-mile radius of the site from east to west and is 1.5 miles north of the site at its closest point.[1,2,15]

3.6 Population Distribution

Approximately 8,676 people live within a 3-mile radius of the site.

0- to 1-mile radius (97 homes times 3.8 people)	= 368.6
1- to 2-mile radius (283 homes times 3.8 people)	= 1,075.4
50 percent of Clarion's population (6,198)	= 3,099
	4,174.4
2- to 3-mile radius (272 homes times 3.8 people)	= 1,033.6
50 percent of Clarion's population (6,198)	= 3,099
	4,132.6
Total =	8,676 people

The estimated number of homes was obtained by conducting a house count using U.S.G.S. Clarion and Strattanville 7.5 minute series quadrangle maps. The population of Clarion, which lies in the three-mile radius and for which there was no house count available, was obtained from the Commercial Reference Map and Guide, Pennsylvania.[1,16]

3.7 Critical Environments

Information acquired from the United States Department of the Interior, Fish and Wildlife Service, shows that the bald eagle and the peregrine falcon are expected to be found as transient species within a three-mile radius of the site. No known endangered species are believed to reside within three miles of the site.[17]

SECTION 4

ORIGINAL (Red)

4.0 WASTE TYPES AND QUANTITIES

According to a CERCLA notification from the Owens Illinois Company, the site was used to dispose industrial waste, as well as municipal waste. The site may have accepted refractory brick, which Owens Illinois generated in the past. Owens Illinois currently generates solvents, which also may have been disposed on site. No records were kept on the waste types or amounts deposited.[4]

Currently, the larger dumping area behind the (b) r lot contains municipal waste, rusted car parts, demolition debris, rusted empty drums, and rusted kitchen appliances. The depth of the debris along the slope is unknown but the surface extends approximately 40 feet wide down to approximately 40 to 50 feet to the base.[2]

A smaller dumping area west of the (b) (6) lot contains broken bricks and demolition debris. This circular path is approximately 10 to 15 feet across and extends halfway down the western slope, beginning at the (b) (6) lot.[2]

SECTION 5

Site Name: Sloan Landfill
TDD No.: F3-8706-13

5.0 FIELD TRIP REPORT

ORIGINAL (Red)

5.1 Summary

On Tuesday, July 7, 1987, NUS FIT 3 personnel (b) (4) (b) (4) conducted a site inspection of the subject site. FIT 3 was briefly accompanied by Christine Dougherty, of PA DER. A total of three home wells and eight soil samples, plus a blank and a duplicate sample, were collected (see figure 5.1, page 5-4). Weather conditions were cloudy, with temperatures ranging from 70°F to 75°F. Photographs were taken on site (see figure 5.2, page 5-7, and the photograph log, section 5.5).

5.2 Persons Contacted

5.2.1 Prior to Field Trip

(b) (6)

(b) (6)

Christine Dougherty
PA DER
White Memorial Building
P.O. Box 669
Knox, PA 16232
(814) 797-1191

Christine Dougherty
PA DER
White Memorial Building
P.O. Box 669
Knox, PA 16232
(814) 797-1191

5.2.2 At the Site (continued)

(b) (6) [redacted]

(b) (6) [redacted]

ORIGINAL (Red)

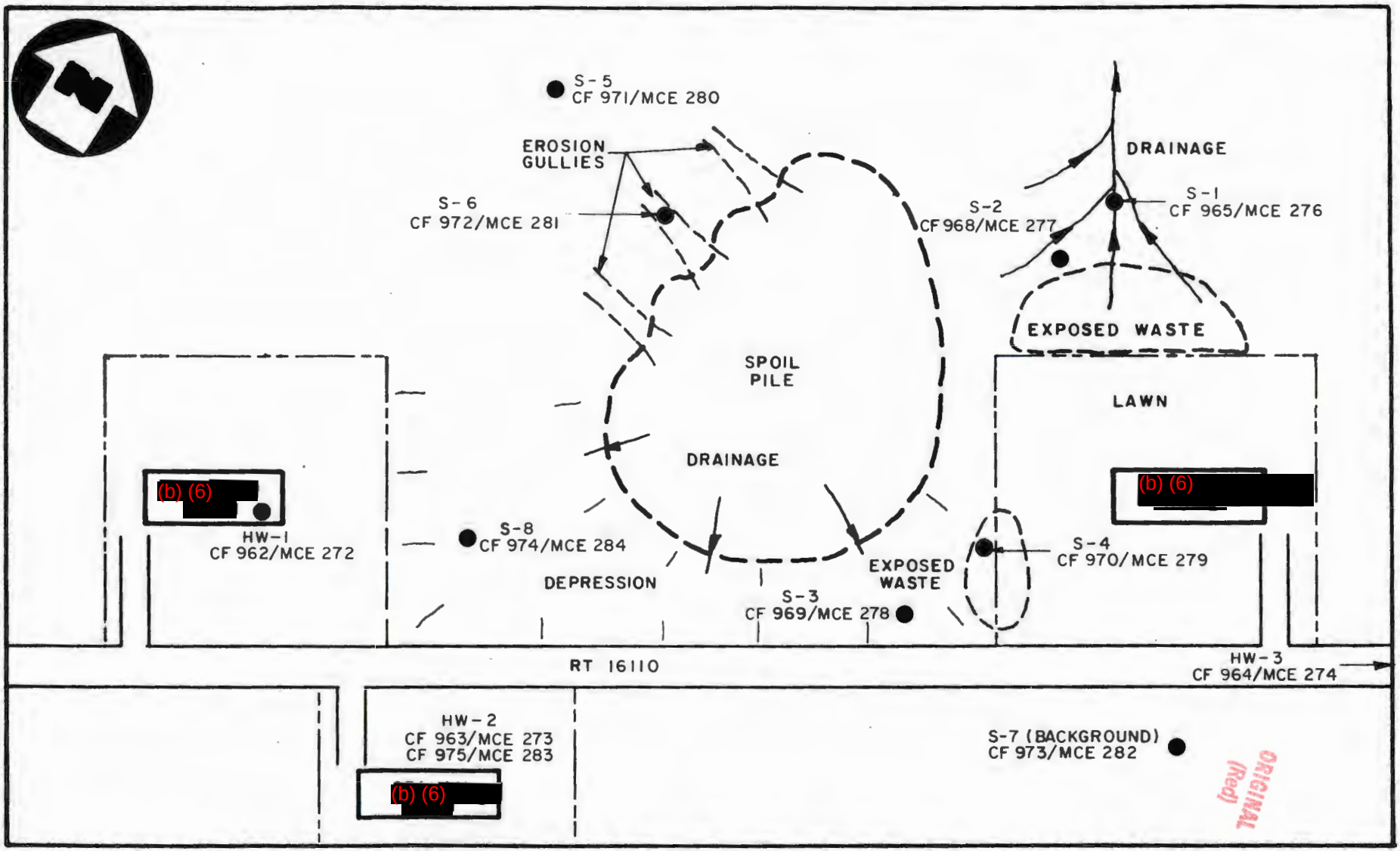
TDD Number F3-8706-13
EPA Number PA-595

SAMPLE LOG

Site Name Sloan Lagoon Fill

TRAFFIC REPORTS Organic	Inorganic	High Hazard	SAMPLING LOCATION	PHASE	SAMPLE DESCRIPTION	DATE	TIME	pH	COMMENTS/OBSERVATIONS	LABORATORY
F962	MCE272		HW-1	Aq	(b) (6)	7/7/87	930		Some In House Treatment	
F963	MCE273		HW-2	Aq			850		Oily Odor See Scum of Oil on Surface NOT used for drinking	Organic &
F964	MCE274		HW-3	Aq			1000		Reported to be Acidic	Nanco
F966	MCE275		Blank	Aq			835			
F967			Blank	Sol			835			Inorganic
F965	MCE276		S-1	Sol	Gravelly Texture		840		Augered to 1½ feet	Versar
F968	MCE277		S-2	Sol	"		830		"	
F964	MCE278		S-3	Sol	Gravel Clay Soil		905		"	
F970	MCE279		S-4	Sol	Gravel and Clay		900		6" depth	
F971	MCE280		S-5	Sol	Fine Clay, Muddy		950		Surface	
F972	MCE281		S-6	Sol	Clay and Sand		1000		Augered to 3 feet	
F973	MCE282		S-7	Sol	Gravel and Clay		930		Background	
F974	MCE284		S-8	Sol	Fine Clay, Muddy		1025		Surface	
F975	MCE283		~~S-9~~ HW2D	Aq	Duplicate of HW-2	7/7/87	850			

ORIGINAL (Red)



SAMPLE LOCATION MAP

SLOAN LANDFILL, STRATTANVILLE, PA

(NO SCALE)

FIGURE 5.1

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5.4 Site Observations

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- The HNU background reading was 0.2 ppm. No readings above background were recorded.
- The mini-alert was set on the X1 position. No readings above background were recorded.
- The entire area surrounding the residential lots along Route 16110 is heavily strip mined.
- A large spoil pile stood between the (b) r residence and the (b) (6) residence. The spoil is dark black and medium grained.
- The area around the spoil pile is used as a recreation area for dirt bikes and all-terrain vehicles.
- A larger waste dumping area was located north of the (b) r lot. Waste types included municipal waste, rusted car parts, demolition debris, rusted drums, and rusted kitchen appliances.
- Two augered soil samples were collected at a depth of 1-1/2 feet at the edge of the larger waste area and in an erosion gully at the base of the same area.
- The northern and eastern sides of the spoil pile were heavily eroded. Many gullies extended from the base to the top of the pile.
- An augered soil sample was collected at a three-foot depth in one of the large erosion gullies of the spoil pile.
- Two surface soil samples were collected in gray muddy patches in the flat area west and southwest of the spoil pile.
- A small demolition debris pile was located east of the (b) r residence.

- A soil sample at a six-inch depth was collected downhill and adjacent to the demolition debris pile.

- An augered soil sample was collected at a 1.5-foot depth, 100 feet east of demolition debris in a low-lying area.

- In addition to the (b) (6) [redacted] home wells, the Emings home well was sampled. The E(b) [redacted]s well is approximately 500 feet east of the site.

- The pine trees that were observed as stressed during the site visit on March 18, 1987 have been identified as western larch trees, which turn brown and shed their needles during the winter. All trees observed during the recent site visit appeared to be healthy.

- Residential wells along Route 16110 have been affected by strip mining in the area.

- The (b) [redacted]r home has an underground storage tank for drinking water. The tank has an inlet pipe that has an appearance similar to a well head. Water is purchased from an outside source.

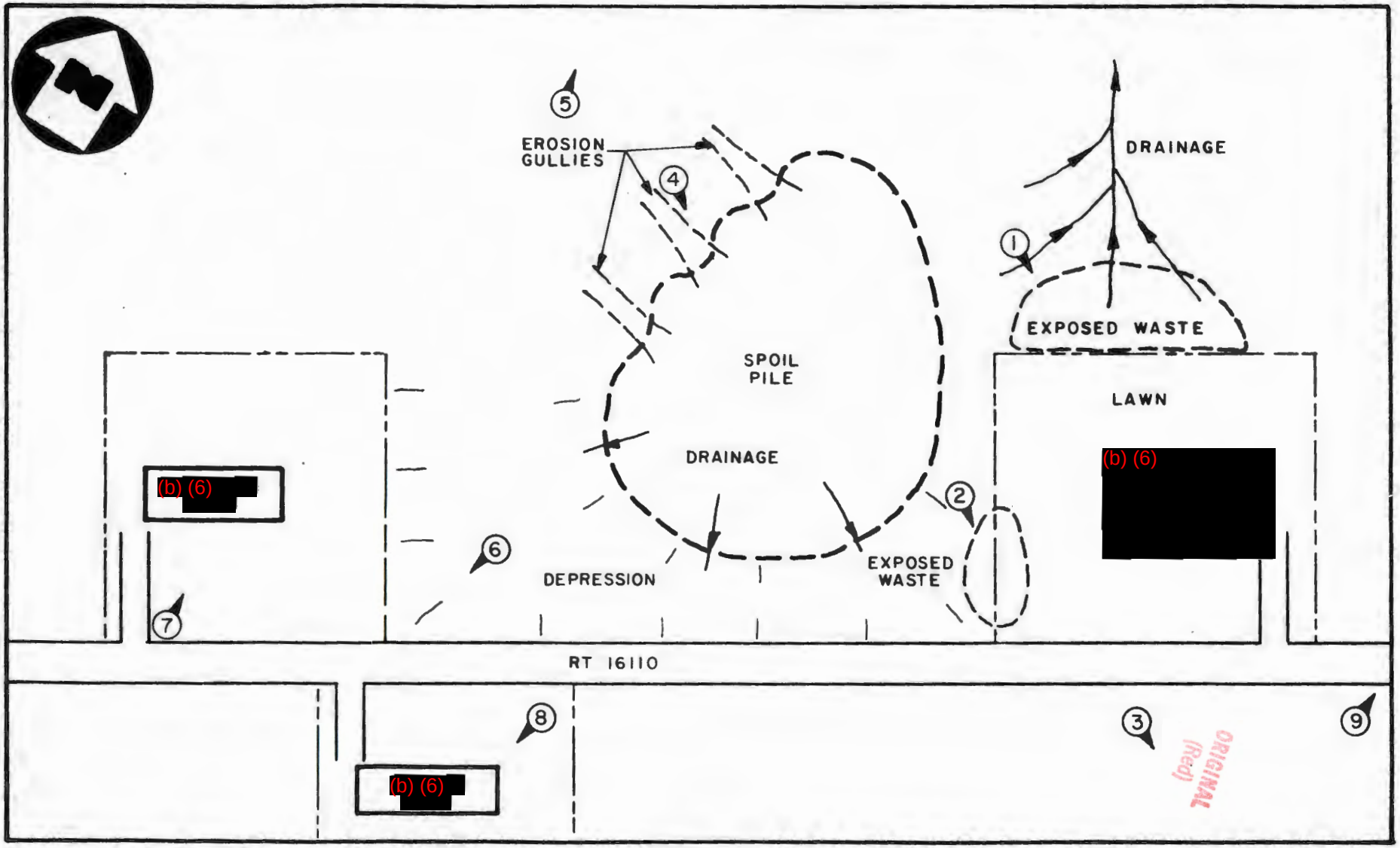

PHOTO LOCATION MAP

SLOAN LANDFILL, STRATTANVILLE, PA

(NO SCALE)

FIGURE 5.2

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A Halliburton Company